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ABSTRACT

The first section of this report defines and discusses the concept of productivity in education, reviews methods used to identify community college outputs and conversion factors, and reviews possible approaches to productivity management. The second section describes the step-by-step procedure used by the Dallas County Community College District (DCCCD), a multi-campus district, to identify ways of obtaining the greatest return on the investment of the educational dollar. The methods used at DCCCD were designed to emphasize resource efficiency while maintaining, if not improving, effectiveness. The eight steps used at DCCCD include the following: (1) making college personnel aware of the need for improvement and researching recognized methods of improving productivity; (2) establishing a group on campus to assume a leadership role and to identify major goals; (3) identifying specific problem areas; (4) identifying measures which had the potential of increasing productivity; (5) evaluating the identified measures; (6) implementing or rejecting the identified measures; (7) monitoring gains or losses in terms of dollars and effects on service; and (8) establishing a reward system to provide incentives to maintain the system on both an individual and collective basis. (DC)

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INCREASING PRODUCTIVITY IN THE COMMUNITY COLLEGE

AN ACTION-ORIENTED APPROACH

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INCREASING PRODUCTIVITY IN THE COMMUNITY COLLEGE:

AN ACTION-ORIENTED APPROACH

By: Bill J. Priest
John E. Pickelman

Devising ways to obtain the greatest return on the investment of the educational dollar is the subject of this essay. The paper outlines the step-by-step procedure used by the Dallas County Community College District to identify such measures. Co-author, Bill J. Priest, as designer of the project, draws upon his thirty years of experience as a community college teacher and administrator in relating the importance of productivity improvement. Dr. Priest has served as Chancellor of the DCCCD since its beginning in 1965. John Pickelman is Special Assistant to the Chancellor and coordinates the project's activities.

Foreword

In the April 1975 issue of the Community and Junior College Journal, a copy of a memorandum to all personnel of the Dallas County Community College District (DCCCD) from Chancellor Bill J. Priest was reprinted.[1] In that communication, Dr. Priest outlined the basic plan to increase productivity in the District's four colleges. One year later, the American Association of Community and Junior Colleges, with the support of the Shell Companies Foundation, invited Dr. Priest and the project's director, John E. Pickelman, to write a paper detailing the background, processes and successes of the program.

The aim of this exercise is to supply other community colleges with information that would aid them in launching similar endeavors. The paper does not purport to answer all questions about productivity improvement, nor does it claim to be a cure-all, a panacea, for the ills of less than optimal output of community colleges. Rather, it is an accounting of the experiences of one multi-college community college district in its struggle to identify, implement, and evaluate measures which increase efficiency while either maintaining or improving the effectiveness of each of its operations.

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[1]Bill J. Priest, "Increasing Productivity: A Memo from the Chancellor," Community and Junior College Journal, April 1975, p. 20.

Although the objectives of the paper are modest, they do have practical value for those community college administrators who are seeking or would like to seek, through an organized effort, measures to improve productivity. It is the authors' intent to give the reader

- a rudimentary understanding of productivity, in general, and its application to the community college environment
- the basic principles inherent in the management of a program to increase educational productivity and problems associated therewith
- the experience of one community college in its program to increase productivity through effective resource use
- possible future directions

It is underscored that the scope of the paper is limited. The fact that the project is still relatively young is a major constraint. But, despite this lack of time-tested authoritativeness, the present and future problems in the financing of post-secondary education make it imperative that action be taken. The Dallas community colleges have just scratched the surface. Undoubtedly, the process has not taken the most direct route. The complex and elusive nature of educational productivity has, in and of itself, produced its share of stumbling blocks. Those who share the responsibility to find ways to obtain the greatest return from the investment of the educational dollar

are invited to join the cutting-edge of productivity improvement. The applicability of Harvey Cox' rejoinder, "Not to respond is to respond," need not be challenged here.

I. PRODUCTIVITY INTRODUCED

The production of goods and services is measured quantitatively (how much?) and qualitatively (how good?) by both the producer and the consumer. The consumer weighs the relative merits of competing products or services on the basis of which one provides the best return for the dollar investment. A response to this concern is seen in today's supermarkets, where unit cost display of items appears together with the total purchase price.

Unit cost is a vital concern to the producer also. The margin of profit in a business is based upon optimal return from the investment of a given amount of resources. The traditional scale used to measure return from investment is: amount of goods produced per man-hour. This relationship between goods produced and man-hours expended is called productivity. Expanding the notion of goods produced to a more general term, output, and likewise referring to man-hours invested as input, productivity can be expressed by the following equation:

$$\text{Productivity} = \frac{\text{Output}}{\text{Input}}$$

If input remains constant, productivity becomes a function of output, i.e., as output increases, decreases, or remains at the same level, productivity responds accordingly.

Productivity in agriculture or in goods-producing organizations is more easily understood in that the variables are more readily definable and, more importantly, quantifiable. The

opposite is true in service organizations. It is not difficult to measure the number of cars that roll off an assembly line, but how does one identify, let alone measure, the production of police officers, or firemen, or educators.

Educational productivity has become more of a concern since the dollars spent for education have increased, while student enrollments have leveled off or decreased. Education receives 8% of the American Gross National Product, a figure requiring close attention. From 1930 to 1970, the number of people employed in education grew at a rate of twice the rate of increase in student enrollment and more than three times the rate of population growth. In that same forty-year time span, expenditures increased nine times; unit costs from 1950 to 1970 went up 300%.[2]

The sixties and early seventies were boom times in higher education, as physical plants and programs increased from resources that seemed inexhaustible. Now, expansion has been replaced by retrenchment. Efficiency and effectiveness have become the bywords of educational watchers. Government officials have scrutinized spending patterns and required accountability systems. The questions asked are, "Does education produce what it claims, and, if so, is it producing in the most efficient manner? Note the words of Harry Provence, Chairman of the Coordinating Board, Texas College and University System:

> A system of higher education has evolved that is self-serving and thinks of its own protection

[2]Patrick E. Haggerty, Productivity in Education, (Texas Instruments Incorporated: Dallas, 1974), pp. 8-10.

> more than serving students and society. With this type of system, decadence begins to set in. This can be seen now. Public higher education costs more and more.
>
> The question is: how can we provide more services to more people at less cost? Our present system is not concerned with justifying its expenditures, nor motivated by measurement of its effectiveness . . .
>
> . . . I must say that while the love affair of Texas with education has not turned to ashes, it has become a marriage and the honeymoon is at an end. The partners in this marriage are having to look at the bills and what those bills have produced . . .
>
> Now that the public mood is running against unlimited spending on all public enterprises, we have an opportunity, indeed a mandate, to rethink our patterns of education. You may be sure that if the education community does not take the lead in this reassessment, non-educators will do it their way. (emphasis added)[3]

The obvious question is, why and how did this situation develop? Historically, educators have been indifferent, or even hostile, toward the pertinence of productivity in the educational setting. What happened behind the ivy-covered walls was sacrosanct and above reproach. But the slipping priority of public education in the eyes of over-burdened taxpayers has thrust the educational operation into the spotlight of accountability. No longer will the consumer take at face value what the educators have claimed is happening. Educators are in the midst of the dollar crunch, and must justify their expenditures. The results have often been devastating. Defeat

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[3]Harry Provence, "Texas' Higher Education Faces Critical Review," The Dallas Times Herald, May 2, 1976, p. B-3.

of bond issues have reflected public sentiment. Faculty have resorted to unions for strength and the courts for defense against wholesale cutbacks. Moratoriums on wage increases, new programs, and construction have been issued by state legislatures and the Federal Congress. With these sanctions have come increased controls. Regulations which accompany Federal grants often necessitate the hiring of additional staff in order to maintain compliance.

Provence's admonition to educators to reassess or be faced with external intervention seems sufficient incentive for those who direct educational operations to examine what productivity improvement can mean to the future of their organizations. Perhaps it is of the same import as it has been to industry: Survival depends upon growth and response to the demands of the community. Without increased productivity, there is no growth.

Productivity in Education

What is educational productivity? The argument has been offered that one cannot define educational productivity because productivity is a measurement, and education cannot be measured. Granted, measures in education are crude and not exacting, particularly when viewed in a macro sense. Trying to develop definitive and quantifying measures of educational output seems to be an impossible task. But, due to the crucial nature of the financial position in higher education, it is incumbent upon educators to act.

The National Center for Higher Education Management Systems has spent over $500,000 in the last five years to develop ways in which the benefits or outcomes of post-secondary education can be quantified. A recent report of NCHEMS Director Ben Lawrence stated:

> Measuring the outcomes of post-secondary education is still in a primitive state. Probably we will not be able to measure these benefits satisfactorily for many years, if ever. But so long as the possibility remains, the effort ought to be made.[4]

Echoing Lawrence's statement is Patrick Haggerty, former Chairman of the Board of Texas Instruments, who has been quite active in relating industrial concepts of productivity improvement to the educational setting:

> ... The concept of productivity is just as valid in education as it is in the production of goods or food. The problem of measurement is much more severe, but the fact is that we have standards in education now which relate to accomplishment, however imperfect they may be, and most of us professionally engaged in any kind of activity can judge subjectively whether we are accomplishing more or less or about the same as we were last year or the year before, and that subjective judgment can be the basis of improved standards of measurement.[5]

If Haggerty's position is accepted that educators must be concerned with productivity in order to justify their effect upon the economy, then the general concern of productivity, expressed in economic terms, needs to be adapted to the educational environment.

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[4]Ben Lawrence, "Cost Analysis in Post-secondary Education: The Contextual Realities," Higher Education Management, October, 1975, p. 4.

[5]Haggerty, p. 20.

It has been established that:

$$\text{Productivity} = \frac{\text{Outputs}}{\text{Inputs}}$$

Inputs are generally considered to fall into one of the following categories:

Manpower Investment

Organizational Mission

Technology

Capital Investment

Environment

Examples of these inputs in the community college include:

Manpower:	investment in faculty, staff, students
Organizational Mission:	the objectives of the community college
Technology:	course packaging
Capital Expenditures:	equipment and building costs
Environment:	government requirements

Managing inputs requires adequate measurement tools. Accounting records provide a basis by which quantified values, generally in dollars and cents, can be assigned to the variables. Difficulty arises when assessment is made of variables which do not lend themselves to the assignment of numerical values. None-the-less, subjective judgments can be made regarding the impact of the variables upon the productivity of the organization. Establishing the values is essential in order to make any judgments regarding whether or not improvement was realized.

Identifying Community College Outputs

The two major characteristics typically associated with output are production quality and production quantity. In the community colleges, certain outputs can be quantified:

- number of students graduating
- number of students completing program
- number of students accepted by four-year colleges

Certain other outputs cannot be quantified:

- impact on society
- affective learning
- public service

The question of quality is a subjective dimension at best. However, there are indicators, particularly as students relate their learning or skill acquisitions to accomplishments in the community. Areas where measurements can possibly reflect quality include:

- job placement
- salary histories
- promotions
- contributions

Time is also a factor. It is conceivable that the experiences in the community college may not pay off for a student for several years. Recognizing the rapid change which takes place, the usefulness of such data would be minimal. In addition, other factors not associated with the college experience may affect positively or negatively a student's measure of accomplishment.

Other outputs of the community college not related directly to the instructional or teaching features of the institution include:

Public service - Example: providing recreational facilities for community use.

Consultant Services - Example: providing expertise in manpower development to attract new industry to the community.

Societal Impact - Example: use of non-credit program to instill in community the idea of life-long learning.

All of these are outputs of the community college and relate in some way to the use of college resources. The goal of productivity improvement is the most efficient use of those resources to produce the greatest possible effects.

Identifying Community College Conversion Factors

Although not included in the productivity equation, there exist factors which, in the process of converting or using resources to produce the desired outcome, impact productivity. These relate to the structure and procedures of the organization. Examples include:

- lines of authority
- procedures
- decision-making
- employee relationships
- job descriptions
- administrative style

It is important to analyze the effect these factors have upon the output/input ratio. Although costs and benefits cannot be

attributed to these factors, there is no doubt that they have a bearing on how well a community college fulfills its objectives.

An elementary model of productivity in the community college is represented in Figure 1, page 13.

Approaching Productivity Management

There are three main dimensions in the arena of productivity management.[6] All three assume a level of service which meets the requirements of the consumer.

One centers on the question of allocation of resources. It questions whether or not the institution achieved the greatest results on the basis of its appropriations. In other words, could it have obtained "more" results had it allocated its resources differently.

Another approach to productivity improvement is related to "preference efficiency." For example, could community colleges be of better service if they spent more money on occupational programs? Restated, are occupational programs of more value than transfer-oriented offerings? The answer requires a value judgment which is often more reflective of political sentiment than it is of documented societal needs.[7]

The third approach to productivity management stresses the examination of operations to determine whether or not

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[6]Robert A. Wallhaus, "The Many Dimensions of Productivity," in Measuring and Increasing Academic Productivity, ed. Robert A. Wallhaus (San Francisco: Jossey-Bass, 1975), pp. 2-3.

[7]Ibid.

Fig. 1

EXAMPLES OF INPUTS, CONVERSION FACTORS, AND OUTPUTS IMPACTING PRODUCTIVITY IN THE COMMUNITY COLLEGE

INPUTS →	CONVERSION FACTORS →	OUTPUTS
1. FACULTY AND STAFF	1. EMPLOYEE QUALIFICATION	1. SUCCESSFUL STUDENTS
2. CAPITAL INVESTMENT	2. ORGANIZATIONAL DESIGN AND PROCEDURES	a. knowledge
3. INSTITUTIONAL GOALS	3. LEADERSHIP STYLE	b. skills
4. COMMUNITY EXPECTATIONS	4. GOVERNANCE	c. program completion
5. EXTERNAL CONTROLS	5. EMPLOYEE ORGANIZATION	d. course completion
6. STAFF DEVELOPMENT		e. job placement
7. SUPPORT SERVICES		f. salaries
8. STUDENT INVESTMENT		g. 4-year transfers
		h. societal contributions
		2. SOCIETAL IMPACT
		3. PUBLIC SERVICE
		4. CONSULTANT SERVICE

there are areas where resources can be used more efficiently. It analyzes both instructional and support services to determine where the "fat" is and where adjustments can be made which result in savings but do not produce a qualitative sacrifice. It is this approach, "resource use," which is being utilized by the Dallas County Community College District in its efforts to increase its productivity.

II. THE DCCCD EXPERIENCE

This section of the paper focuses on one approach to the management of a program to increase the educational productivity of a public multi-college, comprehensive community college district: the Dallas County Community College District. Having four campuses, the District will expand to seven campuses in 1978. In Fall 1975 over 34,000 students enrolled in credit courses on the campuses, in extension centers, and through television. The operating budget for 1975-76 was in excess of $31,000,000. Approximately sixty-five percent of its income is derived from state revenue. The District is directed by a seven member board, elected by the citizens of Dallas County, and administered by a chancellor, three vice-chancellors, and four college presidents. Given these characteristics of the Dallas County Community College District, what is proffered is simply that this program is having a positive impact on District operations.

The project is action-oriented, emphasizing resource efficiency while maintaining, if not improving, effectiveness. It is a commitment to proaction, discarding the notion that one needs to know all the answers (especially in measurement) before any gains or productivity increases can be realized. The project's success is evidence to other colleges that strides, regardless of size, can be made. Gains which are viewed as short-term lay the groundwork and promote the kinds of efforts which help bring about the technological advances required for maximum overall improvement of educational services.

It challenges educators who heretofore have claimed that the complexity of the productivity concept precludes any planned, organized effort to improve. Such positions are no longer tenable, as legislators, government agencies, businesses, students, indeed the entire community, rightfully demand the optimal in educational production given the current investment of resources. Unless educators are willing to respond to this mandate, others namely those who pay the bill, will assume greater regulatory and review roles. To avoid such a condition and insure that the quality of instruction and service to Dallas County citizens remained at a high level, the District embarked upon a project to increase productivity. The history of the project is illustrated by a cycle consisting of eight contiguous phases (See Figure 2). For the most part, each phase occurred in sequence. It was not uncommon, however, for two or more phases to be operating concurrently.

STEP I -- RECOGNITION/ORIENTATION

Characteristic of this element was the recognition that the operations of the District can and needed to be improved. It was acceptance of the challenge to identify measures which in effect reduced costs and/or provided better services. Simply stated, it was an admission that the job had to be done better, in fact, much better. Such awareness paralleled the business and industrial commitment to increase profits. Productivity consciousness embraces the concept that an

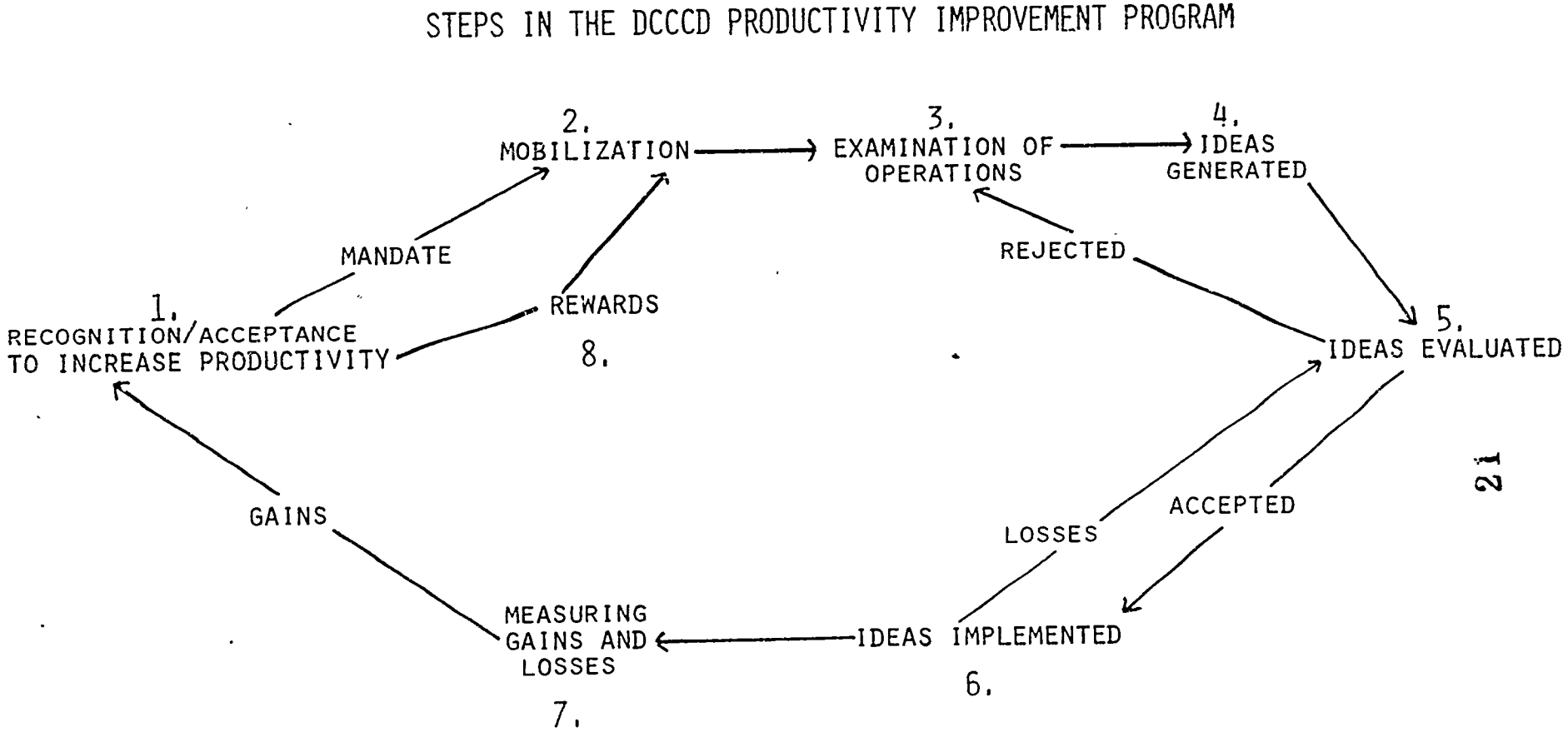
STEPS IN THE DCCCD PRODUCTIVITY IMPROVEMENT PROGRAM
1.
RECOGNITION/ACCEPTANCE
TO INCREASE PRODUCTIVITY
2.
MOBILIZATION
3.
EXAMINATION OF
OPERATIONS
4.
IDEAS
GENERATED
5.
IDEAS EVALUATED
6.
IDEAS IMPLEMENTED
7.
MEASURING
GAINS AND
LOSSES
8.
MANDATE
REWARDS
REJECTED
ACCEPTED
GAINS
LOSSES

Figure 2.

institution or business must strive for improvement in order to avoid stagnation and/or possible retrenchment.

During this first phase of the DCCCD project, the following activities took place:

1. Chancellor consulted with Board members and business leaders to determine what could be adapted from industrial productivity improvement programs to a similar venture in the community college setting.

2. Chancellor issued a challenge to all District employees to improve operations without inordinate amounts of dollar investment. Approach was not sensational, but low-key.

3. Meetings were held at all levels of the organization. Purpose was to generate enthusiasm while reassuring individuals that this was not an austerity "kick," but a genuine push for job improvement. Also, emphasis was given to the long-term nature of the project; that potentially grave financial problems were in the foreseeable future unless positive action was taken.

4. A search for all information regarding productivity improvement programs was undertaken. Its purpose was to develop a storehouse of knowledge regarding the technical and practical aspects of productivity.

5. A staff member was hired to assume responsibility for shepherding the project, acting as an ombudsman to the District office and the four campuses. This person reported directly to the Chancellor, giving added emphasis to the

Chancellor's interest and commitment.

Summarized, the key elements of this phase as outlined above are as follows:

1. Recognition of the problem
2. Decision to find ways to solve the problem
3. Acquisition of knowledge from others
4. Communication and orientation of purpose to staff
5. Provision of staff report

STEP II -- MOBILIZATION[8]

The major function of this element of the project was to establish a group on the campus who would assume the leadership role. Since it was determined that the long-range success of the program was dependent upon broad-base support, representatives of all segments of the college community were included.

In addition, it was perceived that strong, respected individuals were needed to give credibility to the venture. The make-up of this action group, which came to be known as the Productivity Committee, was the President (ex officio), Dean of Students (Chairman), Dean of Business Services, Associate Dean of Instruction for Technical/Occupational Program, a secretary, an office manager, two students, and five faculty members. All members were recruited and appointed by the college president. It was necessary for the committee members to share in the commitment to improve productivity, to understand its importance to the future of the college and to

[8]For continuity, the focus of this section will be on Richland college, one of the DCCCD campuses.

be willing to spend inordinate amounts of time on this assignment as compared to other committee responsibilities.

Once the committee was formed, it identified two major goals: first, it would be necessary to make the college community sensitive to the importance of productivity improvement; and, second, that sensitivity would have to be converted into activities which would eventually lead to gains in productivity. The first goal was accomplished through a number of communication devices: the campus newsletter, regular staff and divisional meetings, memoranda, and simple word-of-mouth to key campus leaders. Perhaps no greater support for acceptance came about than through the endorsement and work of instructional leaders and other supervisory staff. The second task was realized by a general call to all members of the campus community to review the activities of their work stations. This set into motion the third phase of the project.

The key features of this second component were:

1. The recognition of the need to have an action group to assume the leadership role of the project.

2. The selection of individuals to the action group whose commitment to the project would ease acceptance of the venture by others in the college community.

3. The identification of immediate objectives.

4. The creation of a productivity awareness, emphasizing the long term impact of the program.

5. The establishment of the program's credibility through key campus leaders.

6. The issuance of a general call to review all campus operations.

STEP III -- EXAMINATION OF OPERATIONS/WORK STATIONS

The overriding principle in operational review was acceptance of the notion that each individual could work better. As was indicated previously, that did not necessarily mean working harder. The emphasis was placed upon working smarter. There were several perspectives from which this review took place. One was to examine how an individual functioned independently from all other considerations. It was an introspective appraisal of not only job performance but job specification. Secondly, the employee related his functioning to others within his department, assessing on the basis of what contribution the individual was making to the total departmental effort. Another related to the department as a working unit, i.e., was it fulfilling its purpose as effectively and economically as possible. Still another basis for evaluation was interdepartmental relations, particularly how departments affected the efficiency and effectiveness of one another by their participation in shared procedures.

Some approaches that were utilized in this exploratory phase included management by objectives, work measurement, time and motion studies, team budgeting/goal setting, process flow-charting and organizational development. From the data gathered by these evaluative tools, problem areas were

identified. In many cases involving interdepartmental or college/district office relationships, staff members were aware of problem areas, but had no means to effectively deal with them. The push for productivity improvement not only identified such problem areas but also afforded the opportunity to search out possible solutions.

STEP IV -- GENERATION OF RECOMMENDATIONS TO INCREASE PRODUCTIVITY

The central purpose of this phase was to identify measures which had the potential of increasing productivity. Some of these measures stemmed from the evaluative process of the previous phase; others were derived from brainstorming. In the process, several questions were posed:

- What steps can be taken which will improve services, yet not increase cost?
- Where can "cuts" be made without a qualitative sacrifice?
- Are there ways in which operations can be made more effective at reduced cost?
- Are there resources which have not been tapped which would increase quality of services?
- What new and different approaches (perhaps radical) might be utilized to increase productiv ty?

The questions provided the stimulus. The response was a process which first identifie ojectives and then activities designed to fulfill those obje es. Throughout the college

community, this process generated ideas. Student suggestions were mixed: not only were there calls for more and better services but there were also ideas offered to save costs. All of the suggestions were referred to the Productivity Committee. During the first year over four hundred suggestions were submitted, including the following:

- Determine the feasibility of offering 6 to 9 p.m. classes on Friday evenings.

- Use newsprint class schedules.

- Develop a comprehensive preventive maintenance plan.

- Develop mutual registration system for both non-credit and credit students.

- Provide fast, easy access to legal aid and advice for college presidents and deans.

Upon receipt of the suggestions, the committee was required to evaluate potential gains and decide whether or not to endorse implementation.

STEP V -- EVALUATION OF PRODUCTIVITY RECOMMENDATIONS

In this phase of the project, the first task of the committee was to establish the criteria by which the recommendations would be evaluated. The primary question to be answered was: If implemented, will the recommendation result in an increase in productivity? The answer lies with the fluctuations of three variables: costs, income, and quality. Working definitions of each are as follows:

Costs: A measure in dollar amounts required to introduce and maintain the recommendation.

Income: A measure in dollar amounts reflecting any proceeds derived as a result of implementing the recommendations.

Quality: A measure of the extent to which objectives of the operation to which the recommendation relates are fulfilled.

Each variable can increase, decrease, or remain constant. To simplify the analysis of these variables, a matrix was be devised which illustrates the various combinations. (See Figure 3.)

Of the twenty-seven possible combinations, seven represent increases in productivity, thirteen are judged to be counter-productive, and seven can result in either increases or decreases. For example, if the benefits or increases in quality are to such a degree to offset added costs, it is possible to argue that there is an increase in productivity.

If the recommendation was judged on the basis of a projection of the three key variables, to be an increase in productivity, the next step of the committee was to appraise its impact on the institution. As an example, it was suggested that an increase in tuition would be an increase in productivity. Having no effect on costs or quality, it was, technically speaking, an increase in productivity. However, to raise tuition would be counter to the mission and objectives of the

Figure 3

MATRIX OF PROJECTED VARIABLES FOR THE EVALUATION OF RECOMMENDATIONS TO INCREASE PRODUCTIVITY

VARIABLES	C_i	C_m	C_d
$Q_i I_i$	$\pm P$	+P	+P
$Q_m I_m$	-P	-P	+P
$Q_d I_d$	-P	-P	-P
$Q_i I_m$	$\pm P$	+P	+P
$Q_m I_d$	-P	-P	$\pm P$
$Q_d I_i$	-P	-P	-P
$Q_i I_d$	$\pm P$	$\pm P$	$\pm P$
$Q_m I_i$	-P	+P	+P
$Q_d I_m$	-P	-P	-P

Q = Quality
I = Income
C = Cost
i = increase
m = maintain
d = decrease
+P = increase in productivity
-P = decrease in production
$\pm P$ = possible increase/decrease in productivity

institution. This value judgment supersedes economic considerations. Another example of a recommendation that would, on surface examination, improve productivity would be to increase the student/faculty ratio by 25%. While this has merit in certain classes, it was considered to be in conflict with those classes which are taught through individualized instruction.

Another aspect of the evaluation process was to view the effects of the recommendation from short-term and long-term vantage points. What may be considered an immediate reduction in costs might be judged as more expensive when viewed in a ten-year time frame. This would be particularly true of a recommendation to eliminate a preventive maintenance program. Also a recommendation to increase the tax rate would certainly generate income and thus increase short-term productivity. However, the potential decrease in support of the community for the District's program could offset the benefits of the additional revenue.

The strategy which the committee employed in evaluating the recommendations had a number of unforeseen plusses. The committee codified all the recommendations into areas of responsibility and asked individuals who had decision-making authority in those areas to visit with the committee and review the viability of the recommendations. The response of administration and faculty was 100% participation. Appearing before the committee the staff had generally one of three

responses: (1) the recommendation has been put into effect and the results are being monitored; (2) the recommendation has merit, but deserves more study to determine its feasibility; (3) the recommendation is rejected because it costs more and/or it does not improve operations.

Because of the exchange between the decision-makers and the committee, a number of benefits were accrued:

- the credibility of the project and the committee's functioning were given added value.
- the broad-base support of the project was strengthened.
- communication levels were increased.
- threat-levels were diminished (in fact, there seemed to be genuine appreciation on the part of some supervisors that someone was taking an interest in their work).
- a system was established which allowed for an individual to receive a prompt response to his/her recommendation, either from the committee or from the person in charge of the affected area.

STEP VI -- IMPLEMENTATION/REJECTION

Once the committee completed its appraisal, it endorsed or rejected the recommendation's implementation. The endorsement was forwarded to those persons who had authority for carrying out the idea to increase productivity. Rejection was communicated to the person responsible for submitting the

suggestion with reasons for its non-adoption. If the decision of the committee was favorable, the recommendation was inserted into the operational machinery of the institution. If it required a change in institutional policy, it was forwarded through appropriate channels to the Chancellor and, eventually, to the Board of Trustees for action. In most cases, however, approval needed only to be secured from the deans and/or college president for implementation.

STEP VII -- MONITORING GAINS/LOSSES

Prior to implementation of the recommendations to increase productivity, data were gathered to establish a basis from which gains or losses could be measured. This was done, not only in terms of dollars, but also in terms of subjective judgments regarding the effects on service, both quantitatively and qualitatively. Receiving the reports from responsible parties, the committee communicated through the college newsletter and staff meetings, the gains and/or losses that were being made. These reports were utilized in budget negotiations for fiscal year 1976-77, with productivity gains identified to support appropriations from the District treasury. Budgeting allocations were the direct pay-off to the college for productivity improvement efforts.

Sample gains in productivity recorded in the 1975-76 academic year included:

1. Suggestion: Use tabloid-style community service brochure.

Improvement: Actual costs saving was $3,416.

2. Suggestion: Offer Friday evening classes from 6 p.m. to 9 p.m.

Improvement: Friday evening enrollment for the spring semester was 272 students. Allowing for added costs, statistics reveal that an additional income of $15,742 was generated.

3. Suggestion: Use more large group instruction (LGI) for lecture courses.

Improvement: Ten sections of LGI were created. This allowed for room utilization savings and increased student enrollment. New income generated: $29,090.

4. Suggestion: Develop regularly scheduled preventive maintenance program.

Improvement: Cost avoidance estimate: $15,000

The dollarization of all suggestions that were implemented resulted in either cost savings or new income of $550,000. It was found that 90% of the recommendations also resulted in either more or better service than had been provided in the past. In no case were quality standards lowered.

STEP VIII -- REWARDS

Rewards, or incentives, were created to maintain the system both on an individual and collective basis. Individuals who succeeded in making productivity gains stood to realize advancement and increased pay through job improvement. Colleges were recognized for their efforts through budgeting appropriation from the District.

For example, after fiscal year 1976-77, eighty percent (80%) of the monies unspent by the colleges will be made available to them for new projects. Heretofore, all monies unspent could not be retained by the colleges and were, in effect, returned to the District office. College departments and divisions which are the main sources for the productivity improvement will also be rewarded by the retained monies.

III. ANALYSIS AND CONCLUSIONS OF THE PROJECT'S SUCCESS

There are several factors which underlie and are most responsible for the gains which have been realized. First and foremost was the commitment of the Board of Trustees and the Chancellor to increasing productivity. With the Board's support, the Chancellor had mandated that measures to improve be found. He demonstrated his seriousness by visiting each of the campuses, challenging each faculty and staff member to do his share through large group and one-to-one contacts. He appointed a staff member who reported directly to him to monitor the project. Throughout the organization, the expectation was the same: effectiveness and efficiency had to be improved.

The second factor which proved instrumental was the positive response from faculty and staff at all operational levels within the organization. This involvement produced a broad base of support for maintaining a high-level of "productivity consciousness." Although the decision for the project did "come down from the top," there was a genuine acceptance of its need. Not only did the "order" carry weight, it made sense. This credibility was maintained through the acceptance of the productivity committee by the entire college community.

Perhaps the most reenforcing aspect of the system was the timeliness of responses to suggestions. A recommendation, regardless of who or where it was generated, received prompt attention. The committee was in a unique position in that it could always obtain answers. A suggestion referred through normal

channels might never get the appraisal it was due. But a recommendation that was submitted to the productivity committee received a reply, even if the answer was a simple "no." The authority to obtain responses was given from the college president. Although it never occurred, the president could have intervened if the committee felt it was being ignored.

An added feature of the project which contributed to its success was the lack of high pressure tactics. Although it was easy to perceive the seriousness of the effort, it was also evident that the project was not reactionary; that is, the effort to increase productivity was a product of foresight, not hindsight. The financial condition of the District was sound; therefore, the project was not a reaction to any kind of immediate fiscal crisis. Even the threat of job loss was not a problem, in that the District planned to expand from four colleges to seven by 1978, and reduction in positions resulting from productivity efforts could be balanced by job openings at the new campuses.

Because each campus was given the responsibility to improve productivity but not required to follow any prescribed standard of procedure, i.e., organization, implementation, etc., the approaches were varied and reflected the attitudes and leadership styles of the colleges' presidents. While all colleges registered some gains, that college which made productivity a top priority far exceeded her sister institutions. It was the only one of the four that began the year with a highly

structured, well-planned, organized approach. Their success reenforced the concept borrowed from industry that productivity improvement programs require managing. The key elements of that management process were measurement, planning and control.

Each feature of the community college was examined for its effectiveness. The areas which proved most conducive to resource efficiency were the support functions. Instruction, however, was not neglected. It was found that the management of time, for example, was just as crucial to the performance of an instructor as it was to the office clerk. Other aspects of the instructional process affecting productivity included the use of television, media resources, computer assisted instruction, the use of para-professionals and staff development. Instructional productivity cannot be ignored because 80% of budgeted monies were appropriated for salaries.

Productivity has traditionally been viewed in a macro sense. The unit cost, dollars required to "educate or train" a student, have been typically used in education as a measure of productivity. The use of unit cost is of little value, other than an indicator of extreme tendencies. Instead of taking the global approach in trying to identify measures which reduce unit costs, the project was designed to spotlight the importance of each function as a contributor to the total effort. Underscoring this attitude was the principle that improvement at operational levels of the organization would have positive effects on the total effort of the District.

CAVEATS

Community colleges recognizing the importance of the effective use of resources in their operations and who elect an action-oriented approach should consider the following which proved to be instrumental in the success of the DCCCD program:

1. Commitment to the importance of measures, conceding that subjective judgments may have to substitute for future, more exacting devices

2. Acceptance of the idea that all jobs can be improved, not by more sweat which Drucker calls "incompetence," but by working smarter.

3. Recruitment of participants from all levels of the organization, in a well-planned, well-ordered and responsive system.

4. Establishment of a monitoring system, headed by a staff person who reports directly to the chief executive of the college.

5. Emphasis on a micro approach, noting that only through examination of separate functions and their inter-relationships can improvements be made.

6. Inclusion of instruction with support services as areas where resources can be used more effectively and used more efficiently.

7. Promotion of the program on a low-key basis, giving it a firm foundation -- credibility as a long-term, permanent project.

8. Provision for incentives through budget policies and evaluation of personnel.

A FINAL WORD ---

The elusive and ambiguous nature of the whole concept of productivity has been mind boggling. Yet we have not allowed this characteristic and its associated measurement problems to deter us.

There is not one feature of the college, whether it be the method used by the groundsman to trim his plants or the way the instructor organizes the fifty minute class period, that cannot be improved. What the future holds for the project is speculative at best. Presumably, its form will change; however, the commitment is there.

The challenge to increase productivity has been accepted. The gains may not revolutionize the economy. But there <u>are</u> gains, and the process, in and of itself, promotes organizational renewal. It is, indeed, a healthy exercise.

BIBLIOGRAPHY

Carnegie Commission on Higher Education. The More Effective Use of Resources. New York: McGraw-Hill, June 1972.

Drucker, Peter F. "Productivity and the Knowledge Worker." Business and Society in Change. The American Telephone and Telegraph Company, 1975.

Haggerty, Patrick E. Productivity in Education. Dallas: Texas Instruments Inc., 1974.

Keane, John F. "Productivity Management." mimeographed speech. Keane Associates, Wellesley Hills, Massachusetts. December 3, 1975.

Lawrence, Ben. "Cost Analysis in Post-secondary Education: The Contextual Realities." Higher Education Management, October, 1975.

O'Neill, J. Resource Use in Higher Education. Berkeley: Carnegie Commission on Higher Education, 1971.

Priest, Bill J. "Increasing Productivity: A Memo From the Chancellor." Community and Junior College Journal, April, 1975.

Provence, Harry A. "Texas' Higher Education Faces Critical Review." Dallas Times Herald, May 2, 1976.

Wallhaus, Robert A., Ed. Measuring and Increasing Academic Productivity. San Francisco: Jossey-Bass, 1975.

Willey, Laurence V., Jr. Computers and Instructional Productivity: A Professional Report. Bethesda: International Business Machines Corporation, 1975.

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